UDC 621.86.061.1 DEUTSCHE NORM November 1982

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Lifting hooks for lifting appliances

Ramshorn hooks

Unmachined parts

DIN 15 402 Part 1

Lasthaken für Hebezeuge; Doppelhaken; Rohteile

Supersedes July 1970 edition

As it is current practice in standards published by the International Organization for Standardization (ISO), the comma has been used throughout as a decimal marker.

Dimensions in mm

1 Field of application and purpose

This standard applies to drop forged and hammer forged unmachined parts with or without nose for ramshorn hooks on lifting means and load carrying means of lifting appliances, which are used primarily for the suspension of loads. The correlation of the lifting capacity of the ramshorn hooks to the strength classes and driving gear groups is in accordance with DIN 15 400. The dimensions specified for l_1 apply to ramshorn hooks forming part of a lifting hook suspension conforming to DIN 15 411. If in exceptional cases, e. g. for existing lifting appliances, different lengths l_1 are needed, this must be mutually agreed on ordering. In the case of ramshorn hooks which are exposed to intense heat (e. g. where the conveyance for molten masses is involved), it is recommended adopting laminated hooks conforming to DIN 15 407 Part 1 and Part 2 for ramshorn hooks of size No. 20 and above. In this way, it is possible to standardize the unmachined parts of ramshorn hooks made by different manufacturers.

2 Dimensions, designation

See pages 2 and 3 for illustrations, designations and tables of dimensions.

3 Material

The specifications of DIN 15 400 shall apply. Ramshorn hooks conforming to this standard should predominantly be of strength classes M or P.

4 Finish

Surface finish: forged and descaled. Permissible deviations: in accordance with tables 2 and 3. Local indentations are permissible on the hook shank and on the transition to the curved back. The negative deviation for such indentations shall be half of the positive deviation for d_1 in accordance with tables 2 and 3. See DIN 15 402 Part 2 for finished parts with threaded shank.

5 Technical delivery conditions

The specifications in accordance with DIN 15 404 Part 1 shall apply.

Continued on pages 2 to 4

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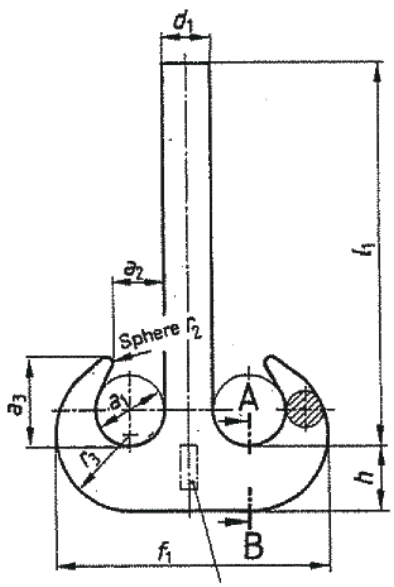
2 Dimensions, designation

Unmachined parts (R) for drop forged and hammer forged ramshorn hooks with or without noses

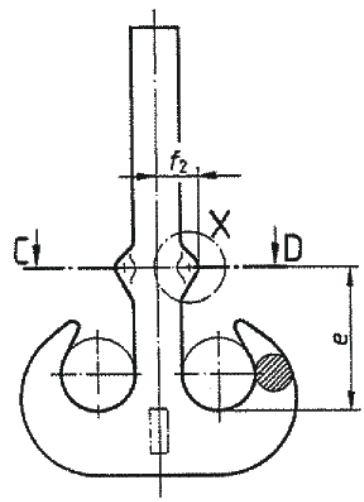
Type RS for drop forged (S) ramshorn hooks **Nos. 05** to **40** without noses
Type RSN for drop forged (S) ramshorn hooks **Nos. 05** to **40** with noses (N)
Type RF for hammer forged (F) ramshorn hooks **Nos. 10** to **250** without noses
Type RFN for hammer forged (F) ramshorn hooks **Nos. 10** to **250** with noses (N)

Types RS and RF



Marking in accordance with DIN 15 404 Part 1

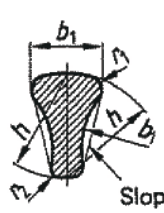
Types RSN and RFN



Marking and remaining dimensions as for types RS and RF

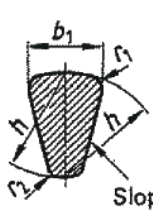
Types RS and RSN

Section (enlarged)



Slope 1:4

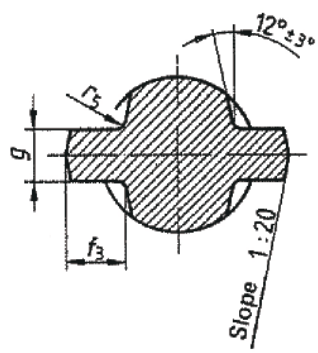
Types RF and RFN



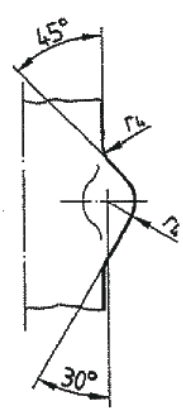
Slope 1:4

Types RSN and RFN

Section C – D



Detail X



Designation of a type RF ramshorn hook No. 100 of strength class M:

Ramshorn hook DIN 15 402 – RF 100 – M

Should lengths l_1 differing from those specified in table 1 be required in exceptional cases, e. g. for use in conjunction with existing lifting appliances, this must be specified on ordering. The designation shall then read as follows, e. g. for l_1 = 1500 mm:

Ramshorn hook DIN 15 402 – RF 100 – 1500 M

Table 1. **Dimensions of types RS, RSN, RF and RFN ramshorn hooks**

Ramshorn hook No.	a_1	a_2	a_3	b_1	d_1	e	f_1	f_2	f_3	g	h	l_1	r_1	r_2	r_3	r_4	r_5	Weight in kg ≈ for type RS	RSN	RF	RFN
05	34	27	44	22	24	80	130	20	12	10	27	165	3	3	36	6	1,6	1,8	1,9	—	—
08	38	30	49	26	30	83	150	22	12	10,5	33	183	4	3	41	6	1,6	2,5	2,6	—	—
1	40	32	52	28	30	96	158	22	14	12	36	195	4	3,5	44	7	1,6	3,5	3,8	—	—
1.6	45	36	59	34	36	100	183	28	14	12,5	43	222	5	4	51	7	1,6	5	5,3	—	—
2.5	50	40	65	40	42	112	208	30	14	14	50	250	6	4,5	58	7	1,6	6,5	6,9	—	—
4	56	45	73	48	48	124	238	33	23	16	60	280	7	5,5	67	10	2,5	9	9,7	—	—
5	63	50	82	53	53	143	266	40	23	16	67	312	8	6,5	75	10	2,5	12,5	13,4	—	—
■ 6	71	56	92	60	60	160	301	44	23	18	75	375	9	7	85	10	2,5	15,5	16,8	—	—
8	80	63	103	67	67	182	337	48	23	18	85	415	10	8	95	10	2,5	24	25,3	—	—
■ 10	90	71	116	75	75	192	377	54	27	23	95	450	11	9	106	12	3,0	34,3	35,5	35	36,3
■ 12	100	80	130	85	85	210	421	60	27	23	106	510	12,5	10	118	12	3,0	48	49,5	49	50,5
■ 16	112	90	146	95	95	237	471	69	36	28	118	580	14	11	132	16	4,0	67,6	69,7	69	71,1
■ 20	125	100	163	106	106	265	531	75	36	33	132	650	16	12,5	150	16	4,0	95	97,5	97	99,5
25	140	112	182	118	118	315	598	86	45	33	150	715	18	14	170	20	5,0	132	135	135	138
■ 32	160	125	205	132	132	335	672	94	45	38	170	790	20	16	190	20	5,0	189	193	193	197
■ 40	180	140	230	150	150	375	754	104	45	38	190	885	22	18	212	20	5,0	274	280	280	286
50	200	160	260	170	170	420	842	120	56	42	212	965	25	20	236	25	6,0	—	—	388	394
■ 63	224	180	292	190	190	460	944	131	56	42	236	1090	28	22	265	25	6,0	—	—	539	547
■ 80	250	200	325	212	212	515	1062	144	56	45	265	1235	32	25	300	25	6,0	—	—	750	759
■ 100	280	224	364	236	236	575	1186	157	56	45	300	1375	36	28	335	25	6,0	—	—	1050	1060
■ 125	315	250	408	265	265	645	1330	178	68	50	335	1550	40	32	375	30	8,0	—	—	1480	1491
■ 160	355	280	458	300	300	725	1505	198	68	50	375	1745	45	36	425	30	8,0	—	—	2100	2115
■ 200	400	315	515	335	335	800	1685	218	68	55	425	1998	50	40	475	30	8,0	—	—	3000	3015
250	450	355	580	375	375	875	1885	240	68	55	475	2250	56	45	530	30	8,0	—	—	4250	4268

■ Specially selected for production cranes, e. g. steel works cranes and rolling mill cranes

Table 2. **Permissible deviations for types RS and RSN ramshorn hooks**

Ramshorn hook No.	Permissible deviations for dimensions a_1	a_2	a_3	b_1	d_1	e	f_1	f_2	h	l_1	g	f_3
05 to 2,5	$^{+3}_{0}$										$^{+1}_{0}$	
4 and 5	$^{+4}_{0}$										$^{+2}_{0}$	
6 and 8	$^{+5}_{0}$										$^{+2}_{0}$	
10 to 16	$^{+6}_{0}$										$^{+4}_{0}$	
20 to 40	$^{+8}_{0}$										$^{+5}_{0}$	

Table 3. **Permissible deviations for types RF and RFN ramshorn hooks**

Ramshorn hook No.	Permissible deviations for dimensions a_1	a_2	a_3	b_1	d_1	f_2	e	g	f_3	h	l_1
10 to 16	$^{+10}_{0}$		± 8	$^{+12}_{0}$	$^{+10}_{0}$		$^{+4}_{0}$			$^{+16}_{0}$	
20 to 32	$^{+12}_{0}$		± 10	$^{+16}_{0}$	$^{+12}_{0}$		$^{+5}_{0}$			$^{+20}_{0}$	
40 to 63	$^{+16}_{0}$		± 12	$^{+20}_{0}$	$^{+16}_{0}$		$^{+6}_{0}$			$^{+24}_{0}$	
80 to 125	$^{+20}_{0}$		± 16	$^{+25}_{0}$	$^{+20}_{0}$		$^{+8}_{0}$			$^{+32}_{0}$	
160 to 250	$^{+25}_{0}$		± 20	$^{+32}_{0}$	$^{+25}_{0}$		$^{+10}_{0}$			$^{+40}_{0}$	

Standards referred to

DIN 15 400	Lifting hooks for lifting appliances; mechanical properties, lifting capacities, actual stresses and materials
DIN 15 402 Part 2	Lifting hooks for lifting appliances; ramshorn hooks; finished parts with threaded shank
DIN 15 404 Part 1	Lifting hooks for lifting appliances; technical delivery conditions for forged lifting hooks
DIN 15 407 Part 1	Lifting hooks for cranes; laminated single hooks for hot-metal ladles and steel casting ladles, synopsis, dimensions
DIN 15 407 Part 2	Lifting hooks for cranes; laminated single hooks for hot-metal ladles and steel casting ladles, individual components
DIN 15 411	Lifting appliances; lifting hook suspensions for bottom sheaves

Further standards

DIN 15 401 Part 1	Lifting hooks for lifting appliances; single hooks; unmachined parts
DIN 15 401 Part 2	Lifting hooks for lifting appliances; single hooks; finished parts with threaded shank

Previous editions

IN 699: 02.33, 11.43; DIN 15 402 Part 1: 07.70

Amendments

The following amendments have been made as compared with the July 1970 edition:

a) DIN 15 400 has been adopted as the basis for material specifications and for the correlation of the lifting capacities to the strength class and to the driving gear groups.

b) The series of drop forged ramshorn hooks has been extended to include hooks up to hook No. 40 inclusive.

c) For hammer forged and drop forged ramshorn hooks the type with nose (N) has been included.

d) Hammer forged ramshorn hooks of size Nos. 6 and 8 have been dispensed with.

e) The standard has been completely revised editorially.

International Patent Classification

B 66 C 1/34